Name _____

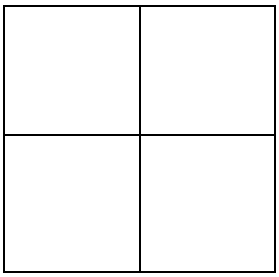
Practice Genetic Problems:
Working Backwards to Determine Parental Genotypes

1. A male tall pea plant is crossed with a female short pea plant. The resulting phenotype ratio is 1 tall: 1 short. Tall (T) is dominant. What are the genotypes of the P_1 generation?

   Tall pea plant's genotype (male): _____ X Short pea plant's genotype (female): _____

   Possible gametes: ____ ____ Possible gametes: ____ ____

   Show your Punnett square to prove your answer.



   Genotype ratio:

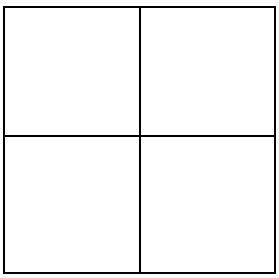
   Phenotype ratio:

2. A male tall pea plant is crossed with a female short pea plant. The resulting phenotype ratio is 100% tall. What are the genotypes of the P_1 generation?

   Tall pea plant's genotype (male): _____ X Short pea plant's genotype (female): _____

   Possible gametes: ____ ____ Possible gametes: ____ ____

   Show your Punnett square to prove your answer.



   Genotype ratio:

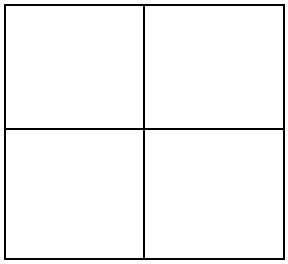
   Phenotype ratio:

3. Two pea plants with axial flowers are crossed. The resulting phenotypic ratio is 3 axial: 1 terminal. Axial flower position (A) is dominant. What are the genotypes of the P_1 generation?

   Axial flower's genotype (male): _____ X Axial flower's genotype (female): _____

   Possible gametes: ____ ____ Possible gametes: ____ ____

   Show your Punnett square to prove your answer.



   Genotype ratio:

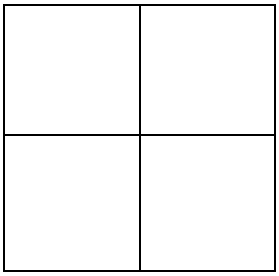
   Phenotype ratio:

4. Two pea plants with axial flowers are crossed. The resulting phenotypic ratio is 100% axial. What are the genotypes of the P_1 generation?

   Axial flower's genotype (male): _____ X Axial flower's genotype (female): _____

   Possible gametes: ____ ____ Possible gametes: ____ ____

   Show your Punnett square to prove your answer.



   Genotype ratio:

   Phenotype ratio:

   Is there more than one possible answer? _____ If so, what is the other possibility?

   _____